DEP Response to EPA LTCP Finance Questions - 10/26/17

Introduction

DEP appreciates the opportunity to provide information on the costs of its CSO control program. DEP is in the midst of an unprecedented period of investment to improve water quality in New York Harbor. Since 2002, projects worth almost $10.0B have been completed or are under way in New York Harbor, including projects for nutrient removal, CSO abatement, marshland restoration, and hundreds of others. DEP has committed a total of nearly $4.2B from the Waterbody/Watershed Facility Plans (WWFP) ($2.7B) and its Green Infrastructure Program ($1.5B), slightly more than half of which has been incurred to-date. In addition to the costs associated with CSO control, DEP has a large portfolio of water and wastewater spending priorities. All of this spending is supported through the imposition of water charges which are paid for by our ratepayers. An analysis of these projects, costs and burden on ratepayers is summarized in DEP's Financial Capability Assessment (FCA) included with each Long Term Control Plan (LTCP) submitted to the New York State Department of Environmental Conservation (DEC).

EPA has posed a series of questions concerning DEP's CSO program; the answers provided below are based on grey and green CSO controls completed, in progress, or planned under DEP's current program. We note that DEP is in the process of producing two additional LTCPs which may identify additional projects, with additional costs not included below.

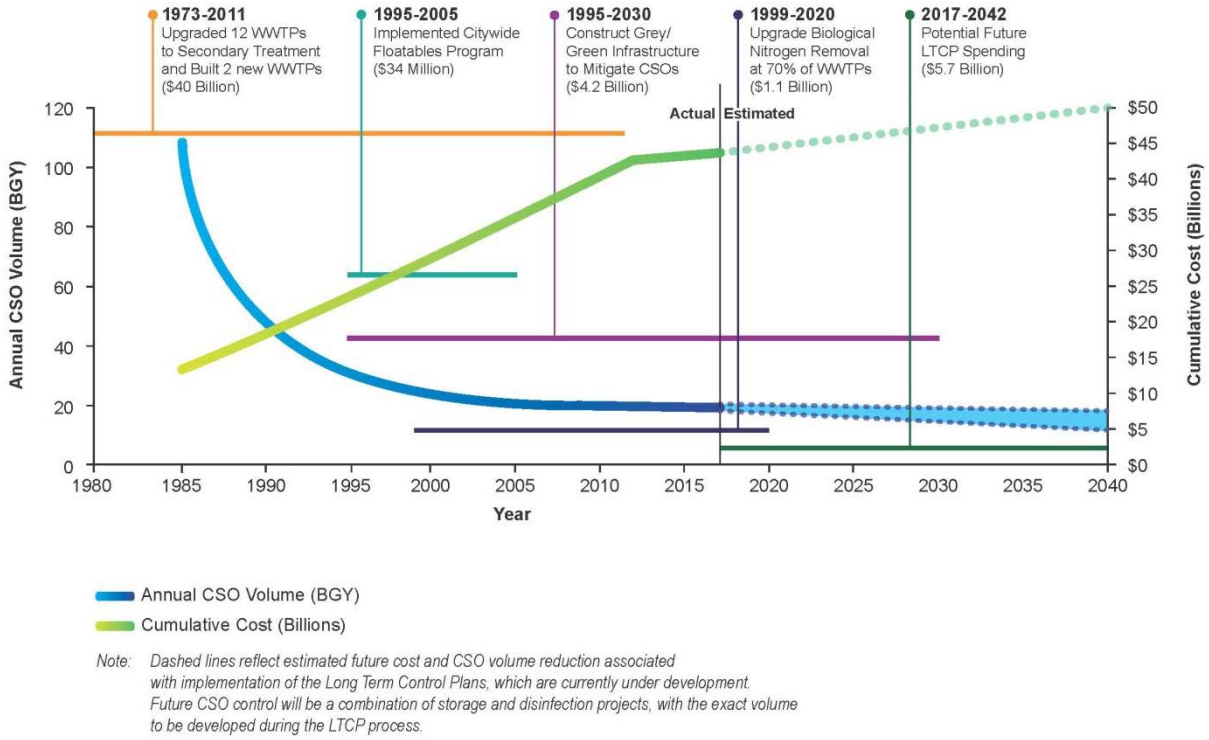
DEP's CSO program is based on the demonstration approach in accordance with EPA's CSO Policy. As noted above, over $4 billion has been encumbered and/or committed to date. This includes implementation of the CSO BMP requirements, which was comprised of low cost optimization options to increase wet weather flows to the treatment plants, as well as implementation of capital projects associated with DEP's Waterbody Watershed Facility Plans. These Waterbody Watershed Facility Plans were submitted to the State in June 2007 with the goal of attaining then-existing water quality standards. A second round of comprehensive planning is occurring in the LTCPs process, which began in June 2013 with the submission of the Alley Creek and Little Neck Bay LTCP, and will continue through December 2018 with a total of 11 LTCP submissions. To date seven out of nine of the submitted LTCPs have been approved, with two pending approval (Coney Island Creek and Newtown Creek). The two remaining LTCPs (Jamaica Bay and Open Waters) will be submitted next year. The goal of the LTCPs is to attain waterbody-specific water quality standards, consistent with the Federal CSO Control Policy and related guidance. The applicable State water quality standards use fecal coliform as the pathogen indicator.

A timeline of wastewater investments and CSO reduction overtime is presented below in Figure 1.

It is important to note that the DEC rule change finalized in 2015 did not change the designated use classifications for Class I and Class SD waters under the State's regulations. The plain language of the pre-2015 rule with respect to the use of the waterbody was left untouched by the 2015 revisions. Thus, for Class I waters, the best designated usages are secondary contact recreation and fishing, as they were prior to 2015, and for Class SD waters, the best designated usage remains fishing. *See* 6 NYCRR §§ 701.13 & 701.14. The CSO Consent Order includes a provision that where the proposed alternative set forth in the LTCP will not attain water quality standards, the LTCP will include a UAA examining whether applicable best use classifications, water quality criteria, or standards should be adjusted by the State. As such, while the CSO projects will further improve water quality, the CSO projects are not designed to achieve the EPA 2012 RWQC enterococcus standard and generally are not scalable to meet those standards, particularly in tributaries and rivers where even 100% CSO reduction is not projected to attain the EPA 2012 RWQC proposed criteria. The open waters and permitted recreational beaches are

projected to achieve much higher compliance with the proposed EPA 2012 RWQC due to the physical characteristics of the waterbodies. Although even 100% CSO control would not be able to attain compliance with the EPA 2012 RWQC, DEP is concerned that applying these water quality standards could eventually require a much higher level of CSO control or other water quality investments, resulting in significantly higher capital costs. In addition, to the extent EPA is considering the entirety of the fiscal implications to the City of a change in water quality standards to enterococcus, there are additional costs beyond those to the CSO program including for other programs that relate to pathogen controls, such as Total Residual Chlorine and MS4.

Figure 1: Historical Timeline for Wastewater Infrastructure Investments and CSO Reduction over Time



Note: Dashed lines reflect estimated future cost and CSO volume reduction associated with implementation of the Long Term Control Plans, which are currently under development. Future CSO control will be a combination of storage and disinfection projects, with the exact volume to be developed during the LTCP process.

DEP's LTCP Financial Capability Assessment (FCA)

In 2014 EPA issued a new framework to supplement their 1997 and 2001 Financial Capability Guidance for LTCPS. This framework encourages permittees to supplement the standard metrics with information that provides a more detailed and localized characterization of permittee's financial capability and the economic status of the residential ratepayer base. The type of information that could be presented includes, but is not limited to:

- presentation of household income by quintiles;
- poverty rates and trends;
- cost of living;
- total utility expenditures including expenditures to meet Safe Drinking Water Act (SDWA) mandates;
- historical increases in rates or other dedicated revenue streams; and

- information on the percent of households who own versus rent[1].

The supplemental information considered for the assessment included in the LTCPs indicates that when taking into account estimates for future spending, 55 percent of NYC households are estimated to pay more than 2.0 percent of Household Income by 2042 on annual wastewater costs alone, suggesting a "high" financial impact on residential users based on EPA guidance. When accounting for both water and wastewater bills, the percentage of households spending at least 4.5 percent of their income could reach 43 percent by 2042. Applying cost of living adjustment factors to discount the value of household incomes and make them comparable to the U.S. average increases this percentage dramatically, considering the Cost of Living Index value for NYC 67 percent higher than the U.S. average. NYC has a poverty rate of approximately 20 percent, far higher than the national average of 14.7 percent. Thus, a large percentage of households would be adversely impacted by sustained rate increases. Additionally, recent data show stagnant to decreasing household incomes in the lower economic brackets. Accordingly, the snapshot picture of household income may underestimate the impacts of future rate increases. In addition, DEP has a large number of critical priorities to implement over the next 25 years including significant capital improvements to water supply and wastewater infrastructure to ensure a state of good repair and sustainable assets, as well as complying with legal mandates. Ultimately, the environmental, social, and financial benefits of all water-related obligations should be considered when priorities for spending are developed and implementation of mandates is scheduled, so that resources can be focused where the community will receive the greatest possible environmental benefit.

Answers to EPA's Questions

Grey infrastructure

1) Definitive identification of each CSO project NYC has committed to completing in each LTCP approved by the state or NYC is offering to implement in each LTCP currently under review by the state.

DEC has approved LTCPs for the following waterbodies: Alley Creek and Little Neck Bay, Westchester Creek, Hutchinson River, Flushing Creek, Bronx River, Gowanus Canal and Flushing Bay. DEP has submitted LTCPs pending DEC approval for Coney Island Creek and Newtown Creek. A summary of the approved and/or proposed (pending approval) alternatives for these waterbodies is shown in Table A.

2) To the extent possible, an appraisal of the retained alternatives NYC is contemplating for the LTCPs currently under development.

At this time, DEP has not identified its retained alternatives for either Jamaica Bay or East River and Open Waters LTCP and, as such, is unable to provide preliminary costs for either LTCP. Jamaica Bay estimates will be available in Mid-2018. East River and Open Waters estimates will be available by the end of 2018.

3) Identification of any other projects NYC plans to implement that are not identified above but nevertheless contributes to CSO abatement (NYC has previously called such projects "baseline CSO projects").

[1] Our FCA is consistent with EPA's 1997 and 2001 CSO guidance and EPA's 2014 Financial Capability Assessment Framework. The most recent analysis was included in Section 9 of the Newtown Creek LTCP issued on June 30, 2017. http://www.nyc.gov/html/dep/html/cso_long_term_control_plan/newtown_creek_ltcp.shtml

As set forth in Table B, DEP has initiated a number of projects to reduce CSOs, including construction of CSO abatement facilities, optimization of the wastewater system to reduce the volume of CSO discharge, controls to prevent floatables and debris that enters the combined wastewater system from being discharged, dredging of CSO sediments that contribute to low DO and poor aesthetic conditions, and other water quality-based enhancements to enable attainment of the WQS. These initiatives impact both the capital investments that DEP must make, and the agency's O&M expenses. These projects include commitments made under WWFPs. In addition to these grey investments, DEP also has committed $1.5B in spending to its green infrastructure program further described below.

In addition to CSO abatement, DEP expects that additional investments in stormwater controls will be required, as they will be for other NYC agencies, pursuant to MS4 requirements.

4) Documentation of estimated capital and operation and maintenance costs of each project identified above, including reasonable and defensible estimates of costs for land acquisition (if necessary for the project).

Capital Commitments for these projects are summarized in Table A. DEP doesn't track O&M costs by project but uses an overall O&M cost per Bureau as many of the assets are maintained by the same staff and requirements contracts. Costs for land acquisition were estimated based on property costs in New York City. See Table A.

These costs are part of a larger $20B 10-year capital improvement plan for all of our water and wastewater priorities including critical mandates and state of good repair.

5) Explanation of how and when NYC has or plans to finance each project identified above, and identification of the portion of such costs already and not already accounted for in current wastewater treatment revenue.

All projects will be financed through wastewater revenues collected from our ratepayers. Our current ten year capital improvement plan has $1.8B allocated to LTCP capital projects. Table A includes a timeframe estimate for when the proposed project costs would be incurred. Note that in addition to very significant capital investments to design and construct the CSO facilities, DEP will need to fund ongoing O&M costs for these facilities. Such O&M costs have a larger immediate impact on the water rate as they are funded through expense dollars, rather than by issuing long-term bonds, where the cost is spread over a span of many years.

Green infrastructure

6) Explanation of how green infrastructure projects are financed.

Green infrastructure projects are financed entirely through wastewater revenues collected from our ratepayers.

7) If green infrastructure projects are not funded through the wastewater treatment revenue levied by the NYC Water Board, then documentation of the current costs of those green infrastructure projects levied through those other revenue streams.

DEP's Green Infrastructure Program is entirely funded by DEP wastewater rate revenues collected from our ratepayers.

Any new development of a certain size in the combined sewer area are required to meet a Stormwater Performance Standard (effective 2012) for detention of stormwater using either grey or green controls. These are funded by the project developers.

8) Identification and documentation of currently planned green infrastructure projects, and a reasonable defensible projection of green infrastructure projects likely to occur in the next 25 years.

Please see DEP's 2016 Green Infrastructure Annual Report for program implementation information. Table 3 outlines the number of assets constructed and impervious acres managed between 2010[1]-2016, as well as the planned projects for 2017. DEP's Green Infrastructure Program's public online map provide a visual and more detailed information about all projects in final design, in construction, and constructed. This map is updated monthly.

DEP in the process of determining the most cost-effective and viable green infrastructure projects to be completed by 2030, as outlined in the CSO Consent Order. DEP's Green Infrastructure Program currently is planned through 2030.

9) Documentation of estimated costs of the planned and projected green infrastructure projects identified above with an explanation of how those costs were derived.

Please see the attached Table A for capital costs. DEP has encumbered $467 million between FY2012[2]-FY2017. Between FY2018-FY2027, the Green Infrastructure Program has $977 million budgeted.

In addition, more than $4 million per year has been allocated for the O&M green infrastructure practices that DEP is committed to maintaining: primarily all right-of-way (ROW) green infrastructure and all NYCHA green infrastructure. As more ROW and NYCHA projects are constructed, adequate funding will be provided to cover those O&M costs. DEP has numerous maintenance partners who will provide O&M for all other projects

O&M for Personnel Services and Other than Personnel Services are estimated for this program as follows:

Green Infrastructure Expenses	FY18	FY19	FY20	FY21+
TOTAL PS (HC=67)	$ 2,948,000	$ 2,948,000	$ 2,948,000	$ 2,948,000
TOTAL OTPS	$ 633,901	$ 1,133,901	$ 1,133,901	$ 1,133,901
GRAND TOTAL	$ 3,581,901	$ 4,081,901	$ 4,081,901	$ 4,081,901

10) Identification and documentation of any other costs associated with other activities designed to reduce bacterial loadings to waters around NYC. This includes but is not limited to:
*** Finding and removing illegal dumping and discharges.**
*** Finding and removing illegal sewer connections.**

*** Source tracking or other activities designed to reduce bacterial loadings.**

DEP staffing costs for IDDE are estimated to be $600,000. In addition, the City's MS4 Permit requires development and implementation of a monitoring and assessment program plan to assess compliance with the permit. DEP is currently developing the monitoring and assessment plan (MAP) under the MS4 Stormwater Management Plan. Costs range from $400,000 for FY18 and FY19 and will scale up to $7.5 million to be spent between FY20 and FY25.

[1] 2010 was the first year of the NYC Green Infrastructure Program.
[2] FY2012 was the first year the NYC Green Infrastructure Program had a budget.

Table A - LTCP CSO Program Costs

10/25/2017

Waterbody	Projects	Total Project Costs (Design, CM, Construction, O&M)				Land Acquisition			CSO Reductions (Including Treated Volumes)		
		Encumbered Cost ($M)	Committed Costs ($M) for FY18-FY27	Committed Costs ($M) for FY28-FY37	Total Cost ($M)	# Sites	Total Area (Acres)	Estimated Cost ($M) [4]	Baseline LTCP CSO Volume (MGY) [1]	LTCP Recommended Plan (MGY) [2]	CSO Reduction (MGY)
Alley Creek	Seasonal Disinfection @ CSO Retention Facility	$2	$11		$13				160	160	0 [3]
Bergen & Thurston Basins									962	962	
Bronx River	New Regulator and Floatables Control at HP-011 + Hydraulic Relief at Outfalls HP-007/-009		$146		$146				506	264	149
Coney Island Creek	No Additonal Projects		$0						75	75	
Flushing Bay	25 MG CSO Storage Tunnel (Outfalls BB-006 and BB-008)		- [5]	$1,146	$1,146	1	4.5	$180	1,827	706	747
Flushing Creek	Floatables Control (Baffles) at Diversion Chamber 3 (Outfall TI-010) and Regulator TI-09 (Outfall TI-011)	$8	$38		$46	2	1.5	$60	819	819	0 [3]
Gowanus Canal	8 MG Tank at RH-034 and 4 MG Tank at OH-007	$79	$735		$814	2	2.5	$100	317	110	
Hutchinson River	Diversion Structure with Floatables Control at HP-024		$112		$112	1	0.25	$10	350	323	0 [3]
Jamaica Bay and Tribs	TBD				TBD				573	573	
Paerdegat Basin	TBD				TBD				0	0	
Newtown Creek	26 MGD BAPS Expansion and 39 MG Deep Tunnel		- [5]	$1,104	$1,104	1	3.5	$140	1,161	454	707
Open Waters	TBD				TBD				12,315	12,315	
Westchester Creek	No Additional Projects		$0		$0				325	325	
Total		**$89**	**$1,780**	**$2,250**	**$3,381**	**7**	**12.25**	**$490**	**19,390**	**17,086**	**1,603**

(1) Baseline CSO LTCP estimates annual overflow volume that is based on plants operating at permitted wet weather capacities, all committed grey and green infrastructure online, 2008 JFK rainfall data (~46" of rainfall), and updated CY2040 projected flows and loads.

(2) LTCP Recommended Plan estimates annual overflow volume that is based on plants operating at permitted wet weather capacities, all committed grey and green infrastructure online, 2008 JFK rainfall data (~46" of rainfall), and updated CY2040 projected flows and loads. Please note that estimated volumes for the recommended CSO plan only includes costs and CSO reductions for LTCPs submitted to date; both the Open Waters and Jamaica Bay LTCPs are still being developed therefore no costs or CSO reductions are included for these waterbodies.

(3) The approved CSO LTCPs for Alley Creek, Hutchinson River and Flushing Creek recommend recreational season disinfection (May thru October); therefore there is no CSO reduction but a significant reduction in bacterial loading. For Alley Creek 100% of the overflow during the recreational season is treated and approxmimately 50%-60% of the overlfows from Hutchinson River and Flushing Creek are disinfected during the recreational season.

(4) The land acquisition costs are extrapolated based on recent negotiations in Gowanus Canal in which 2.5 acres is projected to cost about $100 million.

(5) FY18 Executive Ten Year Plan for FY18-FY27 has $1.78 billion budgeted for LTCP. $738 million is yet to be allocated by waterbody.

Table B - Committed Existing CSO Program Costs

10/25/2017

Waterbody	Projects	Total Project Costs (Design, CM, Construction, O&M)				CSO Reductions (Including Treated Volumes)		
		Encumbered Cost ($M)	Committed Costs ($M)	Total Cost ($M)	O&M Cost ($M/Yr)	Pre-WWFP CSO Volume (MGY)[1]	Baseline LTCP CSO Volume (MGY)[2]	CSO Reduction (MGY)
Alley Creek	CSO Retention Facility	$139		$139	$0.4	517	160	357
Bergen & Thurston Basins	Warnerville Pumping Station and Force Main + Bending Weirs + Parallel Interceptor + Lateral Sewer	$42	$12	$54		1,482	962	520
Bronx River	Maximize Flow to HP WWTP + Floatables Control	$46		$46		508	506	2
Coney Island Creek	Avenue V PS Expansion + Wet Weather Force Main	$197		$197		301	75	226
East River Open Waters	Bowery Bay Headworks + Port Richmond Throttling Facility + Tallman Island Conveyance Improvements + Outer Harbor CSO Regulator Improvements	$196		$196		16,350	12,315	4,035
Flushing Bay	Regulator Modifications to High Level Interceptor + Low Lying Diversion Sewer + Environmental Dredging	$69		$69		2,187	1,827	360
Flushing Creek	CSO Retention Facility + Vortex Facilities	$363		$363	$2.3	2,531	819	1,712
Gowanus Canal	Gowanus PS Reconstruction + Flushing Tunnel	$194		$194		404	317	87
Hutchinson River	Hunts Point WWTP Headworks	$3		$3	TBD		350	
Jamaica Bay & Tribs	TBD	$512	$65	$577	TBD	700	573	127
Newtown Creek	Floatables Control + Bending Weirs + Plant Expansion + Instream Aeration	$228	$31	$259		1,472	1,161	311
Paerdegat Basin	CSO Retention Facility	$394		$394	TBD	1,833	0	1,833
Westchester Creek	Weir Modifications + Pugsley Creek Parallel Sewer	$124		$124		792	325	467
Green Infrastructure Program	Citywide GI Program [3]	$467	$1,033	$1,500	$12.8			
Total Cost		**$2,974**	**$1,141**	**$4,115**	**$15.5**	**29,077**	**19,390**	**10,037**

(1) Pre WWFP is pre Waterbody Watershed Facility Plan estimates annual overflow volume that is based on 2003 wastewater treatment plant wet weather capacities, existing infrastructure in 2003, 1988 JFK rainfall data (~40" of rainfall), and CY2045 projected flows and loads.

(2) Baseline CSO LTCP estimates annual overflow volume that is based on plants operating at permitted wet weather capacities, all committed grey and green infrastructure online, 2008 JFK rainfall data (~46" of rainfall), and updated CY2040 projected flows and loads.

(3) The Citywide GI program committed costs are out to CY2030, the current 10 year capital improvement plan goes from FY2018 to FY2027 and is funded for approximately $977 million. The existing projected O&M costs for encumbered GI is about $4M with a projected cost of about $15M associated with the full GI buildout.